

[54] **TOUCH PANEL SYSTEM AND METHOD**

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[58] Field of Search ..... **273/85 G, DIG. 28, 1 E, 273/1 GC; 33/1 M; 146/334; 250/207, 211 R; 324/71; 340/365 R, 365 S, 365 A; 178/18, 19; 364/410**

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

3,676,676	7/1972	Somer .	
3,691,382	9/1972	Somer .	
3,699,439	10/1972	Turner .....	178/18
4,013,835	3/1977	Eachus et al. ....	178/18
4,018,989	4/1977	Snyder et al. ....	178/19
4,071,691	1/1978	Pepper .....	178/19
4,121,049	10/1978	Roeber .....	178/18
4,129,747	12/1978	Pepper .....	178/19
4,138,592	2/1979	Capehart et al. ....	178/19
4,178,481	12/1979	Kley .....	178/18
4,198,539	4/1980	Pepper .....	178/18

**FOREIGN PATENT DOCUMENTS**

1133757 11/1968 United Kingdom .

**OTHER PUBLICATIONS**

*Gametrionics Proceedings*; "The Trazor TM—A New Input Device"; Jan. 1977; pp. 115-120.  
*Journal of Electron Spectroscopy and Related Phenomena*; "A Photosensitive Detector for Electrons"; 1975; pp. 151-156.

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[57] **ABSTRACT**

A general method is disclosed for accurately determining the location or position of a source or sink of electric current on the surface of a resistance element or impedance layer. Touch panels are described that detect the presence of a user's finger on such surface, and produce output signals corresponding to the position of the finger in one or more axes. A preferred embodiment discloses a touch panel that includes a signal generator and determines the position of the user's finger from current flowing through the user's body to ground. Another touch panel embodiment determines the position of the user's finger from currents caused by ambient electrical noise. A pressure-sensitive touch panel, a transparent touch panel for use with a video display, a touch-panel-controlled audio mixer, and a video game incorporating touch panels are also disclosed.

**11 Claims, 14 Drawing Figures**

